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DEVICE FOR TRANSPORTING, OFFERING, AND CULTIVATING POTTED PLANTS AND
PROCESS FOR MANUFACTURING THIS DEVICE
[Vorrichtung zum Transportieren, Anbieten und Kultivieren eingetopfter
Pflanzen und Verfahren zur Herstellung der Vorrichtung]

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FOREIGN TITLE	[54A] :	VORRICHTUNG ZUM TRANSPORTIEREN, ANBIETEN UND KULTIVIEREN EINGETOPFTER PFLANZEN UND VERFAHREN ZUR HERSTELLUNG DER VORRICHTUNG

The invention relates to a device for transporting, offering, and cultivating potted plants in accordance with the preamble of Claim 1, as well as to a process for manufacturing such a device in accordance with the preamble of Claim 14.

A device and a process of the type mentioned are familiar to the art from DE 9106346U1. Devices of this kind can either be used in such a way that the flower pots are inserted into them from the side of the receptacle which has the greater diameter (for flower pots with a larger diameter), or the device is turned around so that the flower pots can be inserted into it from the side of the receptacle which has the smaller diameter (for flower pots with a smaller diameter).

The invention is based on the objective of improving a device and a process for manufacturing a device of the kind mentioned at the beginning of the text in such a way that, in both positions in which the device is used, an unobstructed run-off of water, for instance, is guaranteed.

In accordance with the invention, this objective is realized with a device exhibiting the characterizing features specified in Claim 1. In accordance with the invention, this objective is realized through a process encompassing the characteristic steps specified in Claim 14.

The bridge projecting in upward direction from the plane of the base plate has at least one hollow cavity which is open towards the bottom side of the base plate in which water poured on the bottom side of the base plate can collect, in order to then be able to reach the support

* Number in the margin indicates column in the foreign text.

surface through a passage way which is arranged in the area of the bridge from where the water can then flow to the flower pots. Moreover, the water cannot collect on the base plate where it requires evaporation heat to evaporate and is disturbing when the device is picked up (e.g., to transport it) because it may spill on the person involved.

In a preferred configuration of the invention, the receptacle on the base plate is molded on in one piece.

So that the flower pots (which, as a rule, are circular in their cross-section) can be held in the respective receptacle as securely as possible, it is advantageous if the receptacle exhibits a conically extending cross-section. With flower pots of a square cross-section, which are also used, the receptacle may have a shape that is matched to this form, so that the largest possible contact surface exists between the outside surface of the flower pots and the inside surface of the receptacles.

In order to be able to compensate for tolerances between the outside diameter of the flower pots and the inside diameter of the receptacles, and to prevent a flower pot that is too small from "falling through" the receptacle, meaning that it is not held by it, the receptacle, in one preferred configuration of the invention, exhibits at least one bridge which is directed inwards.

In a working operation, an inventive device is supplied with flower pots either from the top or, in a reversed state, from the other side which previously constituted the bottom side. In order to be able to /2

supply the plants with water, it is advantageous if the receptacle exhibits at least one recess on a free edge. This makes it possible that the water can flow in between individual receptacles and can reach the flower pots through the recesses on the receptacles.

In a preferred configuration, the recess has an essentially trapezoidal shape. This means that the free space of the receptacle extends in an approximately undulated shape.

Preferably, the edge of the receptacle which faces the base plate is essentially arranged flush with the plane of the base plate. However, it is also possible that the bridge is configured as an edge which, e.g., has the form of beading, which projects beyond the base plate.

To lift off the base plate from a support surface so far that, in the case of a reversed use of the device, water can also reach the individual flower pots in the receptacles, the base plate exhibits at least one bridge which projects from a plane, which may also have the form of the previously described beading-type edge on the receptacle. The bridge may also be configured as a vault in the area of the receptacle.

To increase the stability of the device, an edge which borders the base plate on the edge side is provided in a preferred configuration of the device. In particular, this edge may be molded on the base plate in one piece.

To label the contents of the device, meaning the plants cultivated or transported and offered in the flower pots in it, for customers and the transporting staff, it is advantageous if, in its edge area, which is equipped with uneven areas, it exhibits a labeling area. This

facilitates the easy application of tags which can also easily be removed again. The latter is particularly advantageous from the aspect of the reusability of the device in the framework of, e.g., a token deposit or recycling system because the new tags do not have to be stuck on the old tags, which would impart a not so attractive general impression.

If the base plate or the edge exhibits a holding system for a labeling tag, further information for the customer's edification can also be clearly visibly offered with the flower pots that are offered in the device.

In a preferred configuration of the device, the base plate or the edge exhibits a fastening system for transportation handles.

In accordance with an especially preferred procedure, the base plate is formed from a thermoplastic material, preferably, from polystyrene, polypropylene, or polyethylene, which may be mixed with reinforcing glass-, mineral, carbon-, or ceramic fibers.

In particular, in accordance with the inventive process, the receptacle may be molded by shaping the base plate in a process like deep drawing. For this purpose, an essentially planar plate made of one of the above-mentioned plastic materials is shaped into the device in an appropriate deep-drawing mold.

In this process, the receptacle may be produced as a cup-like hollow of the base plate. The cup-like hollow of the receptacle may be configured with a bottom into which radially oriented raised areas and recesses /3 are molded which extend to the wall of the receptacle.

In a subsequent process step, in accordance with a preferred approach, the bottom and a connecting area of the wall of the receptacle can be

removed so far that a part of the radially oriented raised areas and recesses extending to the wall remains in the shape of an undulated length of the free edge of the receptacle.

When the receptacle(s) is/are molded, at least, one bridge is already molded out of the base plate, whereas at least one open cavity is formed in the bridge. Subsequently, at least, one passageway perforating the base plate is formed in the area of the bridge.

Moreover, on the base plate, an edge bordering it on the edge side can be formed, whereas a labeling area is configured at the edge area or on the edge of the base plate, which is equipped with uneven areas.

Finally, a holder for a labeling tag and, at least, one holder for transportation handles can be formed on the base plate or on the edge.

A configuration example of the invention is shown in the drawing and will be explained more closely below. In this process, the inventive process for the manufacturing of the inventive device will also be explained. For this purpose, reference will be made to the drawings in which

Figure 1 shows a configuration example of the device in a perspective representation in a first position of use;

Figure 2 depicts the configuration example of the device from Fig. 1 in a perspective representation in a second position of use;

Figure 3 shows the configuration example of the device from Fig. 1 in a perspective representation from the front,

Figure 4 depicts the configuration example of the device from Fig. 1 in a lateral perspective representation from below;

Figure 5 shows the configuration example of the device from Fig. 1 in a lateral perspective representation from above;

Figure 6 depicts a detailed view of the middle area of the front side of the configuration example of the device from Fig. 1 in a perspective representation from above;

Figure 7 shows a detailed view of a corner area of the front side of the configuration example of a device from Fig. 1 in a perspective view from below;

Figure 8 shows a detailed view of the middle area of the front side of the configuration example of the device from Fig. 1 in a perspective representation from below;

Figure 9 depicts an interim step in the manufacturing of the configuration example from Fig. 1 in a top view from above;

Figure 10 depicts the interim step in the manufacturing of the configuration example of the device from Fig. 9 in a top view from above; and,

Figure 11 shows a detailed view of a receptacle for flower pots in the interim step in the manufacturing of the configuration example of the device from Figure 10 in a lateral perspective representation. /4

Figure 1 shows a device for transporting and offering flower pots which exhibits an approximately rectangular base plate (10) with eleven receptacles (12) for flower pots that are provided in it. The receptacles (12) respectively are arranged offset in relation to each other in such a way that the highest possible packing density can be realized while, simultaneously, torsional rigidity of the base plate (10) is obtained.

The receptacles (12) have a cross-section which essentially narrows in a direction that is transverse in relation to the base plate (10). In the top view, the receptacles (12) exhibit an approximately circular shape and are molded on the base plate (10) in one piece.

The base plate (10) is made from a thermoplastic material, preferably, polystyrene, polypropylene, polyethylene, or similar, with which reinforcing glass-, mineral-, carbon-, or ceramic fibers can be mixed.

The receptacles (12) are either produced by shaping the base plate (10), preferably, by deep-drawing, or the device is produced as an injection-molded piece.

On their conically narrowing inside walls (14), the receptacles (12) have four evenly distributed bridges (16) pointing towards the inside, which project into them at about half the depth of the receptacles (12).

The bridges (16) have a sickle shape and a collar (14a) (also, e.g., see Figs. 7 and 8) which extend into the inside wall (14).

The diameter which is the upper one in Fig. 1 of each receptacle (12) has a diameter of about 12 cm while the lower diameter of the receptacles (12) in Fig. 1 is about 11 cm. The bridges (16) respectively project towards the inside by about 3 mm. With this, in the position of the device that is shown in Fig. 1, flower pots with a conical shape can be taken up, which have an upper diameter of about 12 cm as well.

In the use position of the device that is shown in Fig. 2, the upper diameter of each receptacle (12), accordingly, is about 11 cm, while the lower diameter of the receptacles (12) in Fig. 2 is about 12 cm. Due to the collars (14a) which gradually grow into the bridges (16) towards

the inside, flower pots with an upper diameter of about 11 cm can be securely held here.

As can be deduced from Figs. 3 and 4, each receptacle (12) on the a free edge (18) which is set at a distance from the base plate (10) exhibits four recesses (22). These recesses (22) have an essentially trapezoidal shape.

On the other end of the receptacle (12), it essentially connects flush in the plane of the base plate (10) with its other edge (24).

On its top side (e.g., see Figs. 1, 3, 5), the base plate (10) exhibits several bridges (26) which project from its plane. The bridges (26) have a straight linear T-shaped, double T-shaped, or approximately button-shaped form with a unilaterally open cavity (28) (e.g., see Fig. 8) in which, at least, with some bridges, one passageway (32) perforating the base plate (10) is provided.

Moreover, the base plate (10) exhibits this edge (34) which borders it on the edge side, so that the base plate (10) forms a trough in the use position that is depicted in Fig. 2, in which water can drain off through the passageways (32).

On one short side, the edge (34) has a labeling area (36) which is equipped with uneven areas (38) in the shape of grooves. In this location, adhesive tags can easily be attached and removed again. /5

Moreover, the base plate (10) respectively exhibits a holder (42) for a labeling tag in the form of an opening which narrows towards the edge (34) in the edge area in the middle of the two short sides. In addition, the opening (42) slightly narrows vertically in relation to the plane

of the base plate, so that a stick of a labeling tag (not shown) can securely be clamped to it. To improve the stability of the holder (42), stiffening flanges (44) are worked into the base plate (10) on both sides, which also reach into the edge (34) (e.g., see Fig. 6). Moreover, the stiffening flanges also serve as finger grip indentations when the device is used in the position shown in Fig. 4 or Fig. 8.

Finally, apart from the stiffening flanges (44), the base plate (10) respectively has a slot (46) as a fastening system for transportation handles (not shown).

The process for manufacturing this type of device for the transportation and offering of flower pots and for cultivating plants is illustrated by means of Figs. 8-11.

An approximately rectangular base plate (10) formed from a thermoplastic material, preferably, polystyrene, polypropylene, polyethylene, or similar, which can be mixed with reinforcing glass-, mineral-, carbon-, or ceramic fibers, is placed into an appropriately shaped hollow deep-drawing mold into which cup-like cavities are worked which narrow conically.

The hollow deep-drawing mold is configured so that every cup-like hollow is configured with a bottom (52) in which radially oriented raised areas (54) and recesses (56) are molded, which extend to the wall (14) of the receptacle (12).

From the hollows, the receptacles (12) are produced in the following manner:

The bottom (52) and a connecting area of the wall (14) of the receptacle (12) are removed to such a degree that a part of the receptacle (12) of the radially oriented raised areas (54) and recesses (56) which extends to the wall (14) of the receptacle (12) remains behind in the form of an undulated length of the free edge of the receptacle (12). For this purpose, the bottom (52) of the cavity is cut off in parallel to the base plate (10) along the line (L) (Figure 11), which is shown dash-dotted. The diagonally extending parts (52a) of the bottom and the parts of the recesses (56) which remain behind after cutting are punched out with the assistance of an appropriate die, or sawed off in parallel to the base plate (10).

The bridge (26), the edge (34), etc. are already formed in the base plate during the deep-drawing process. Afterwards the passageways (32) and the slots (46) are punched into the base plate (10).

Patent Claims

1. Device for transporting, offering, and cultivating potted plants with a base plate (10) which has a top side and a bottom side, and which exhibits at least one receptacle (12) with a recess in the base plate and an inside wall (14) which extends on the bottom side of the recess in such a way that the free cross-section of the receptacle (12) narrows and flower pots of various widths can be inserted from both sides of the base plate (10) into each receptacle (12), whereas the base plate (19) exhibits at least one bridge (26) which projects from the plane in upward direction characterized in that the bridge (26) exhibits a hollow cavity (28) that is open towards the base plate (10) with at

least one passageway (32) producing a liquid connection to the top side of the base plate (10), so that liquid poured on the bottom side of the base plate (10) can drain off through the bridge (26).

2. Device in accordance with Claim 1, characterized in that the edge (24) of the receptacle (12) which faces the base plate (10) is essentially arranged flush with the plane of the base plate (10).

3. Device in accordance with Claim 1, characterized in that the bridge (26) is configured as a beading-type edge which extends around the receptacle (12).

4. Device in accordance with Claim 1, characterized in that the bridge (26) is configured as a vault in the area of the receptacle (12).

5. Device in accordance with any of the Claims 1 to 4, characterized in that the receptacle (12) is molded on the base plate (10) in one piece.

6. Device in accordance with any of the previous Claims, characterized in that the receptacle (12) exhibits a cross-section which narrows conically.

7. Device in accordance with any of the previous Claims, characterized in that the receptacle (12) exhibits at least one bridge (16) on its inside wall (14), which is pointed inwards.

8. Device in accordance with any of the previous Claims, characterized in that, on one free edge (18), the receptacle (12) exhibits at least one recess (22).

9. Device in accordance with Claim 8, characterized in that the recess (22) exhibits an essentially trapezoidal shape.

10. Device in accordance with any of the previous Claims, characterized in that an edge (34) bordering the base plate (10) on the edge side is provided.

11. Device in accordance with any of the previous Claims, characterized in that the base plate (10) exhibits a labeling area (36) in its edge area or the edge (34), which is equipped with uneven areas (38).

12. Device in accordance with any of the previous Claims, characterized in that the base plate (10) or the edge (34) exhibits a holder (42) for a labeling tag.

13. Device in accordance with any of the previous Claims, characterized in that the base plate (10) or the edge (34) exhibits a fastening system (slots, 46) for transportation handles.

14. Process for producing a device for transporting, offering, and cultivating potted plants, particularly, in accordance with any of the previous Claims, with the steps:

- providing of a base plate with a top and bottom side,
- molding of at least one flower pot receptacle with a narrowing cross-section and at least one bridge which projects from the base plate in upward direction, characterized by the steps /7
- molding of a cavity which is open to the bottom side of the base plate, and
- formation of a passageway in the cavity which produces a liquid connection to the top side of the base plate.

15. Process in accordance with Claim 14, characterized in that the base plate is formed from a thermoplastic material, polystyrene, polypropylene, or polyethylene, whereas reinforcing glass-, mineral-, carbon-, or ceramic fibers can be mixed with it.

16. Process in accordance with Claim 14 or 15, characterized that the receptacle is molded by shaping the base plate, such as through deep-drawing.

17. Process in accordance with any of the Claims 14 to 16, characterized in that the receptacle is produced as a cup-like hollow of the base plate.

18. Process in accordance with Claim 17, characterized in that the cup-like cavity of the receptacle is configured with a bottom in which radially oriented raised areas and recesses are molded which extend to the wall of the receptacle.

19. Process in accordance with Claim 18, characterized in that the bottom and a connecting area of the wall of the receptacle are removed to such a degree that a part of the radially oriented raised areas and recesses extending to the wall of the receptacle remains behind in the form of an undulated length of the free edge of the receptacle.

Accompanied by 6 page(s) of drawings.
